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| EXAMINER |
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ADAMS, GREGORY W

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| ART UNIT | PAPER NUMBER |
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3652

DATE MAILED: 12/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,693

Applicant(s)

AGGARWAL ET AL.

Examiner

Gregory W. Adams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 10, 11, 22, and 23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

By example, referring to claim 10, line 2, applicant discloses a “reduced pitch.” It is noted that “pitch” refers to “set at a particular level, degree, or quality.” The American Heritage® Dictionary of the English Language, Fourth Edition, Copyright © 2000 by Houghton Mifflin Company. Or “pitch” may refer to “[t]he distance between symmetrically arranged or corresponding parts of an armature, measured along a line, called the pitch line, drawn around its length; sometimes half of this distance is called the pitch.” Webster's Revised Unabridged Dictionary, © 1996, 1998 MICRA, Inc. While the specification refers to “pitch”, page 13, lines 29-30, and page 14, lines 1-2, applicant refers to “standard pitch” without disclosing how one skilled in the art would make and/or use a “variable pitch end effector”.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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3. Claims 1,10,12,13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "front wafer handling chamber" in line 5. There is insufficient antecedent basis for this limitation in the claim. Claim 1 also recites the limitation "front docking ports" (emphasis added) in line 7. Only one docking port was set forth on line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the limitation "shelves...have a reduced pitch relative to a front opening unified pod..." It is unclear whether this refers to the space, i.e. distance, from the buffer station rack shelves to the unified pod, or whether it is a comparison between the distance between the shelves in a buffer station rack to the distance between the shelves in a unified pod shelves.

Claims 12,13 recite the limitation "front wafer handling chamber" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6, 10-16, 18-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiroki (US 5,989,346).

6. With respect to claim 1, referring to FIGS. 1-12 Hiroki '346 discloses a semiconductor processing tool 1 comprising a front substrate handling chamber 5, docking port 9b, robot arm 60a, load lock chamber 3 joined to the first substrate handling chamber 5, buffer station 30 between the load lock chamber 3 and first substrate handling chamber 5, buffer station rack 31, buffer station rack shelves 32,33, cassette 42. Relative to the 112, second paragraph, rejection above it is presumed that the robot arm 60a is located in the first substrate handling chamber 5.
7. With respect to claim 2, Hiroki '346 discloses a buffer station rack 31 that holds wafers. Col 12, Ins. 25-30.
8. With respect to claim 3, Hiroki '346 discloses a rear substrate handling chamber 4. It is noted that Hiroki is not limited to requiring a robot arm within a handling chamber, only that the arm is capable.
9. With respect to claim 4, Hiroki '346 discloses a buffer station 30 having an inert environment isolated from the first substrate handling chamber 5.
10. With respect to claim 5, Hiroki '346 discloses a buffer station 30 selectively purged.
11. With respect to claim 6, Hiroki '346 discloses a buffer station 30 accessed by robot arm 60a.
12. With respect to claim 10, Hiroki '346 discloses a reduced pitch buffer station rack shelves 32,33.
13. With respect to claim 11, Hiroki '346 discloses a robot arm 60a, variable pitch end effector 66, end effector shelves 66a,66b.

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14. With respect to claim 12, Hiroki '346 discloses a first substrate handling chamber 5 configured to operate at atmospheric pressure. Col. 7, Ins. 21-22. Relative to the 112, second paragraph, rejection above it is presumed that a front substrate handling chamber refers to the first substrate handling chamber 5.

15. With respect to claim 13, Hiroki '346 discloses a first substrate handling chamber 5 configured to operate at reduced pressure. Col. 7, Ins. 21-22. Relative to the 112, second paragraph, rejection above it is presumed that a front substrate handling chamber refers to the first substrate handling chamber 5.

16. With respect to claim 14, referring to FIGS. 1-12 Hiroki '346 discloses a semiconductor processing tool 1 comprising a substrate handling chamber 5, docking port 9b, cassette 42, cassette rack, col. 1, Ins. 49-51, buffer station 70, buffer station rack 72,74,76,78, buffer station rack slots 79.

17. With respect to claim 15, Hiroki '346 discloses a load lock chamber 3 having a load lock chamber rack 31.

18. With respect to claim 16, Hiroki '346 discloses a rear substrate handling chamber 4. It is noted that Hiroki is not limited to requiring a robot arm within a handling chamber, only that the arm is capable.

19. With respect to claim 18, Hiroki '346 discloses a load lock chamber rack 31 for holding 300mm wafers.

20. With respect to claim 19, Hiroki '346 discloses a substrate handling chamber 5 at standard atmosphere pressure. Col. 7, Ins. 21-22.

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21. With respect to claim 20, Hiroki '346 discloses a substrate handling chamber 5 at reduced pressure. Col. 7, Ins. 21-22.

22. With respect to claim 21, Hiroki '346 discloses a buffer station rack 72,74,76,78 with reduced relative spacing between rack slots 79.

23. With respect to claim 22, Hiroki '346 discloses a buffer station rack 31 at reduced pitch rack 31, accessed by robot arm 60a. Col. 6, Ins. 47-53.

24. With respect to claim 23, Hiroki '346 discloses a robot arm 60a, end effectors for transferring substrates. Col. 12, Ins. 5-10.

Claim Rejections - 35 USC § 103

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

26. Claims 7-9, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroki (US 5,989,346).

27. With respect to claim 7, referring to FIGS. 1-12 Hiroki '346 discloses a buffer station 30 except for limiting the volume to 18.3 liters or less. It would have been obvious to one having ordinary skill in the art at the time the invention was made to limit the volume of buffer station 30, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

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28. With respect to claim 8, referring to FIGS. 1-12 Hiroki '346 discloses a buffer station rack 31 for supporting twenty-five 300mm silicon wafers. It would have been obvious to one having ordinary skill in the art at the time the invention was made to limit the buffer station rack 31 to supporting twenty-five 300mm silicon wafers, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

29. With respect to claim 9, referring to FIGS. 1-12 Hiroki '346 discloses a load lock chamber 3 limited to 9.156 liters or less in volume. It would have been obvious to one having ordinary skill in the art at the time the invention was made to limit the load lock chamber 3 to 9.156 liters or less in volume, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

30. With respect to claim 17, referring to FIGS. 1-12 Hiroki '346 discloses a load lock chamber 3 limited to 1 to 7 substrates. It would have been obvious to one having ordinary skill in the art at the time the invention was made to limit the load lock chamber 3 to 1 to 7 substrates, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Conclusion

31. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 5,915,957 to Tanigawa discloses multiple shelf variable pitch end-effectors.

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US 6,048,164 to Moslehi discloses multiple shelf variable pitch end-effectors.

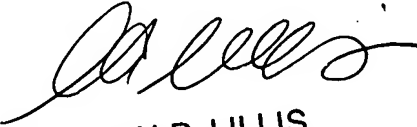
US 6,450,755 to Cameron et al. discloses multiple shelf variable pitch end-effectors.

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory W. Adams whose telephone number is (703) 305-0555. The examiner can normally be reached on M-F, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen D. Lillis can be reached on (703) 308-3248. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GWA


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